



Rapid Watershed Assessment La Crosse - Pine River Watershed

Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help landowners and local leaders set priorities and determine the best actions to achieve their goals.

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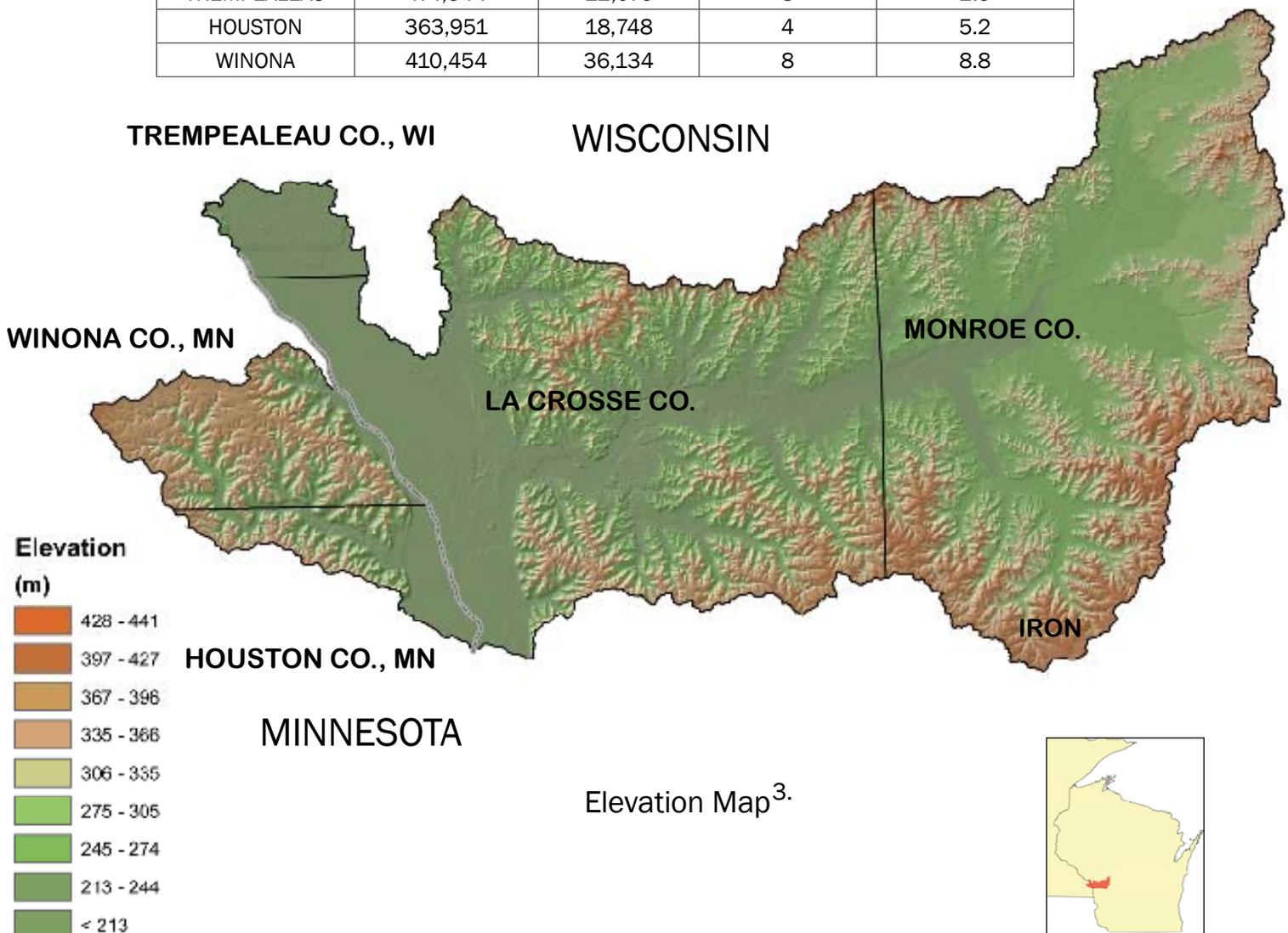
The area is characterized by a dendritic drainage pattern on a landscape composed of narrow, cropped ridges and bluffs surrounded by steep, forested slopes leading to broad, cropped valleys. A mixture of livestock farms, mainly dairy, and cash grain operations account for a large portion of the land use, along with forestland. Corn, soybeans, and alfalfa are the primary crops. The vast majority of the 60,000 acre Fort McCoy Military Reservation is located in the La Crosse River headwaters area. The other major federal land area is the Upper Mississippi River National Wildlife and Fish Refuge in the Mississippi River valley.

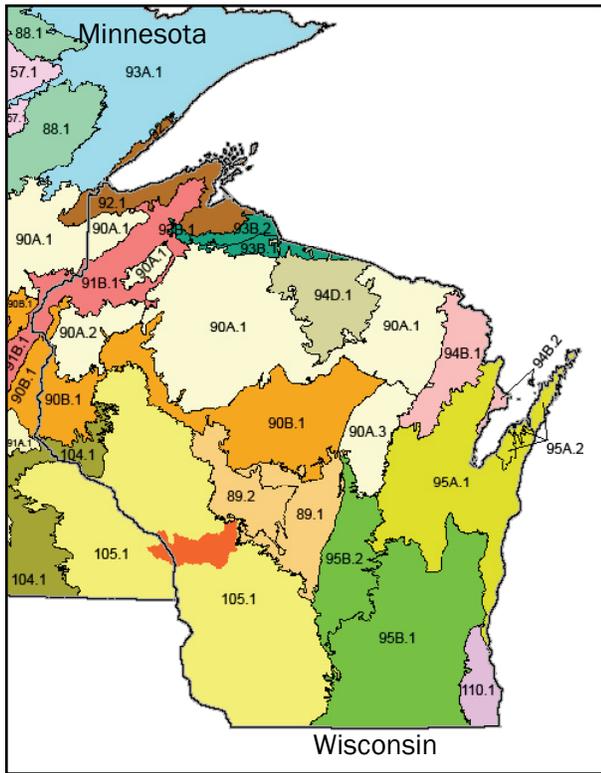
Spring-fed, coldwater trout streams are common and attract a large number of local and non-local anglers. As in the rest of the Driftless Area, there are very few natural lakes in the watershed. The largest impoundments in the watershed are the 737 acre Neshonoc Lake, formed by a dam on the La Crosse River near West Salem, and 7,688 acre Lake Onalaska, created by Lock and Dam No. 7 on the Mississippi River.

The city of La Crosse (pop. 50, 287), located along the Mississippi River, and the surrounding communities constitute the population center of the watershed. The rest of the watershed is largely rural with the city of Sparta (pop. 8,827) being the largest outlying community.

Acreage in the La Crosse Pine River Watershed

| County | County Acres | Acres in HUC | % of HUC from County | % of County in HUC |
|-------------|--------------|--------------|----------------------|--------------------|
| LA CROSSE | 307,073 | 187,175 | 43 | 61.0 |
| MONROE | 580,838 | 184,990 | 42 | 31.8 |
| TREMPEALEAU | 474,544 | 12,076 | 3 | 2.5 |
| HOUSTON | 363,951 | 18,748 | 4 | 5.2 |
| WINONA | 410,454 | 36,134 | 8 | 8.8 |





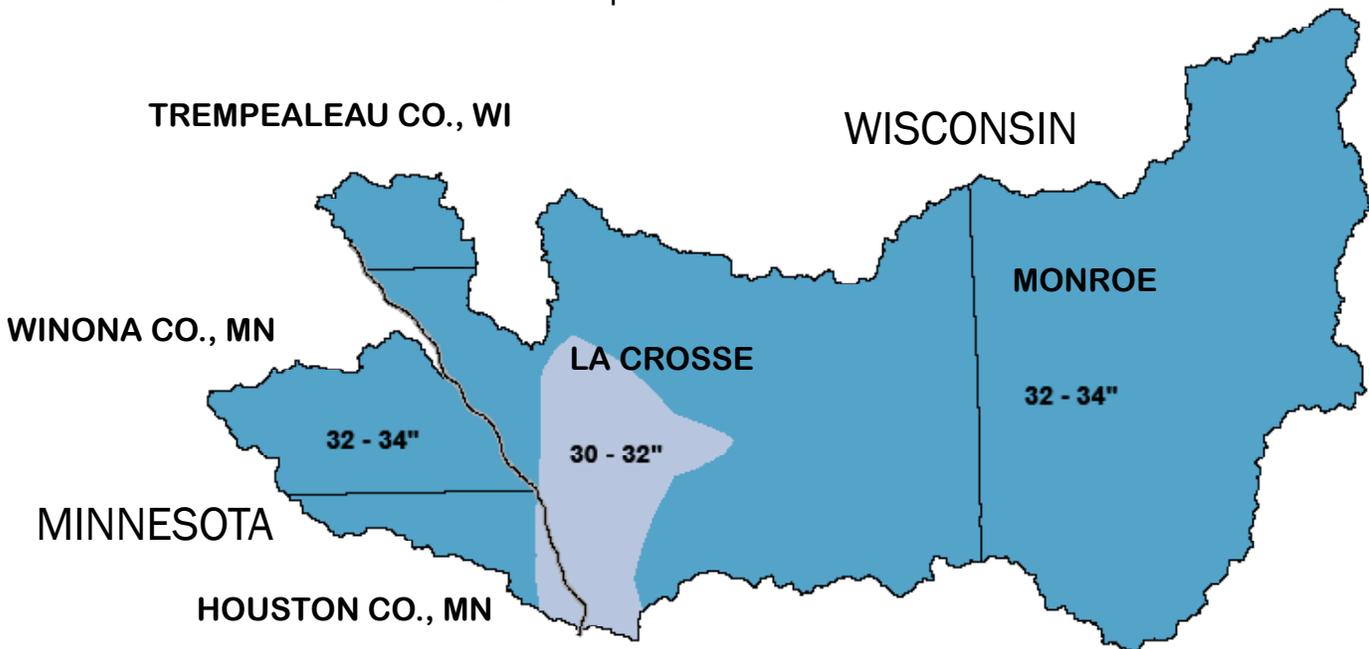
Common Resource Area Map

COMMON RESOURCE AREAS²

Common Resource Area delineations are defined as a geographical areas where resource concerns, problems and treatment needs are similar. Common Resource areas are a subdivision of an existing Major Land Resource Area (MLRA). Landscape conditions, soil, climate and human considerations are used to determine the boundary of Common Resource Areas.

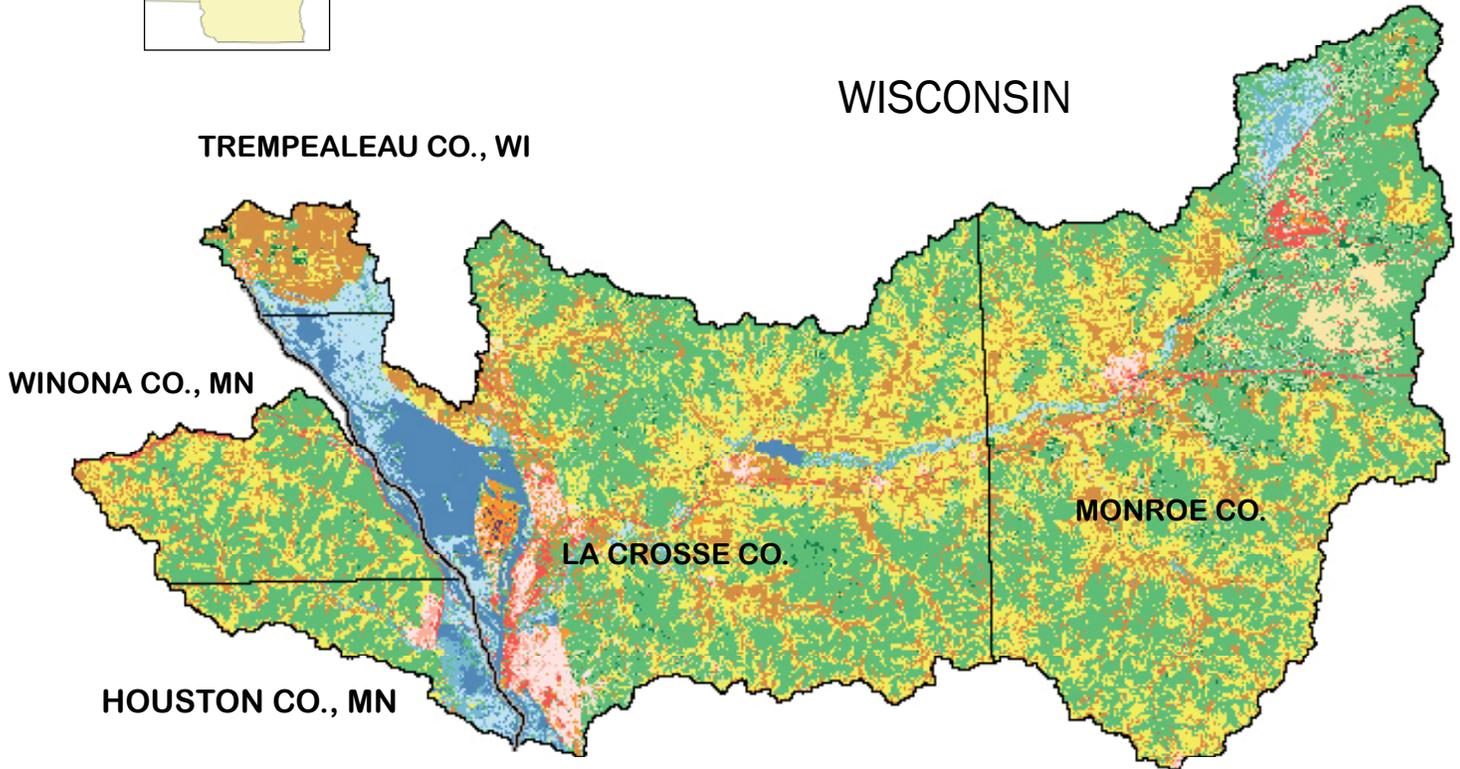
105.1. DRIFTLESS LOESS HILLS AND BEDROCK

Highly dissected hills and valleys, including several major river valleys. Well drained and moderately well drained silty soils over bedrock residuum. Predominantly cropland and grazing land on ridge tops and valley bottoms with a mix of dairy, beef and cash grain agricultural enterprises. Deciduous forest on steep side slopes. Moderate development pressure. Primary resource concerns are cropland soil erosion, surface water quality, grazing land and forestland productivity, stream bank erosion, and erosion during timber harvest.



Average Annual Precipitation Map (inches)⁴



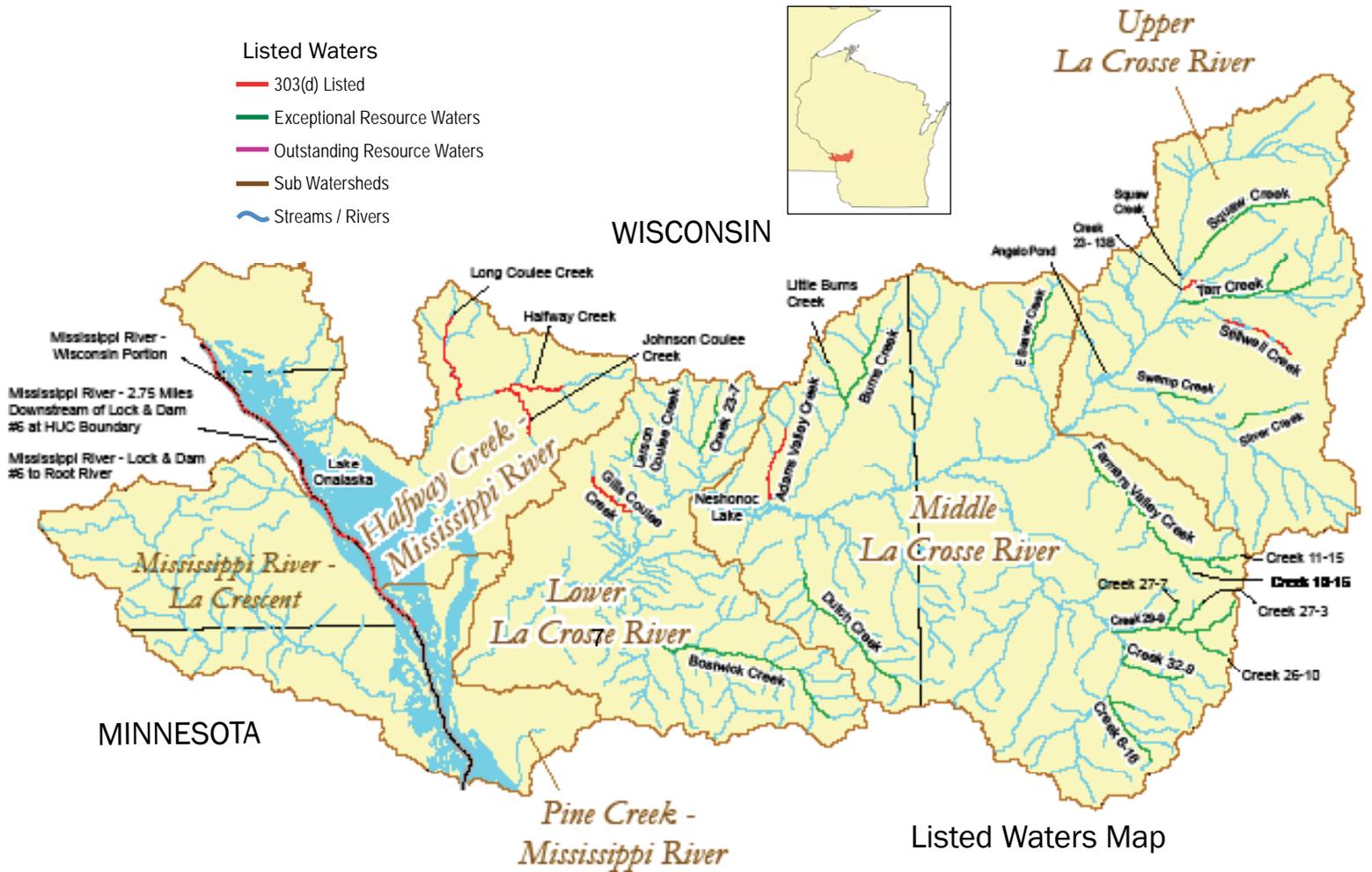


Land Cover Map⁵.

| | Acres | Percent | | Acres | Percent |
|---|---------|---------|---|----------|---------|
|  Pasture Hay | 112,490 | 25.6 |  Low Intensity Residential | 7,577 | 1.7 |
|  Deciduous Forest | 178,291 | 40.6 |  High Intensity Residential | 2,200 | 0.5 |
|  Row Crops | 60,670 | 13.8 |  Evergreen Forest | 5,863 | 1.3 |
|  Open Water | 18,110 | 4.1 |  Mixed Forest | 12,813 | 2.9 |
|  Woody Wetlands | 14,123 | 3.2 |  Transitional | 191 | 0.0 |
|  Emergent Herbaceous Wetlands | 6,496 | 1.5 |  Urban / Recreational Grasses | 3,816 | 0.9 |
|  Commercial/Industrial / Transport | 9,029 | 2.1 |  Quarries / Strip Mines, Gravel Pits | 66 | 0.0 |
|  Grasslands / Herbaceous | 8,202 | 1.9 |  Bare Rock / Sand / Clay | 15 | 0.0 |
| | | | | | |
| | | | Total Acres | 439,957. | 100 |

ASSESSMENT OF WATERS⁶

Section 303(d) of the Clean Water Act states that water bodies that are not meeting their designated uses (fishing, swimming), due to pollutants, must be placed on this list. The 303(d) impaired Waters List is updated every two years. Wisconsin is required to develop TMDLs, Total Maximum Daily Loads, for water bodies on this list. Exceptional Resource Waters (ERW) provide valuable fisheries, hydrologically or geologically unique features, outstanding recreational opportunities, unique environmental settings, and which are not significantly impacted by human activities may be classified as exceptional resource waters. Outstanding Resource waters (ORW) and ERW differ in that ORW do not have an associated point source discharge, where ERWs do.



Exceptional Resource Waters List

- | | | |
|--------------------|----------------------|---------------------|
| Bostwick Creek | Burnes Creek | Creek 6-16 |
| Creek 10-16 | Creek 11-15 | Creek 23-7 |
| Creek 26-10 | Creek 27-3 | Creek 27-7 |
| Creek 29-9 | Creek 32-9 | Dutch Creek |
| E. Beaver Creek | Farmers Valley Creek | Larson Coulee Creek |
| Little Burns Creek | Silver Creek | Squaw Creek |
| Swamp Creek | Tarr Creek | |

For information on specific subwatersheds, 303(d) or Exceptional/Outstanding Resource Waters (ERW/ORW):
<http://dnr.wi.gov/org/water/wm/wqs/303d/faqs.html> and <http://dnr.wi.gov/org/gmu/gpsp/gpbasin/>

| 303(d) Waters | Mercury | Degraded Habitat | Sediment | PCBs | PH | Phosphorus | Temp. | Urban Runoff |
|--|---------|------------------|----------|------|----|------------|-------|--------------|
| Adams Valley Creek | | X | X | | | | | |
| Gills Coulee Creek | | X | X | | | | | |
| Halfway Creek | | X | X | | | | | |
| Johnson Coulee | | X | X | | | | | |
| La Crosse River at Angelo Pond | X | | | | | | | |
| Long Coulee Creek | | X | X | | | | | |
| Mississippi River, 2.75 miles downstream of L & D #6 at HUC boundary | X | | | X | | | | |
| Mississippi River - Wisconsin Portion | X | | | X | | | | |
| Mississippi River - Lock and Dam #6 to Root River | X | | | X | | | | |
| Neshonoc Lake | | | X | X | X | X | | |
| Squaw Creek | | | | | | | X | |
| Stillwell Creek | | X | X | | | | X | |
| Creek 23 - 13B | | X | | | | | | X |

SOILS⁷.

The soils in this watershed have formed mainly from windblown silty deposits (loess) overlying a variety of bedrock formations. Landscapes are generally unglaciated and landforms are typical bedrock-controlled hill slopes and valleys.

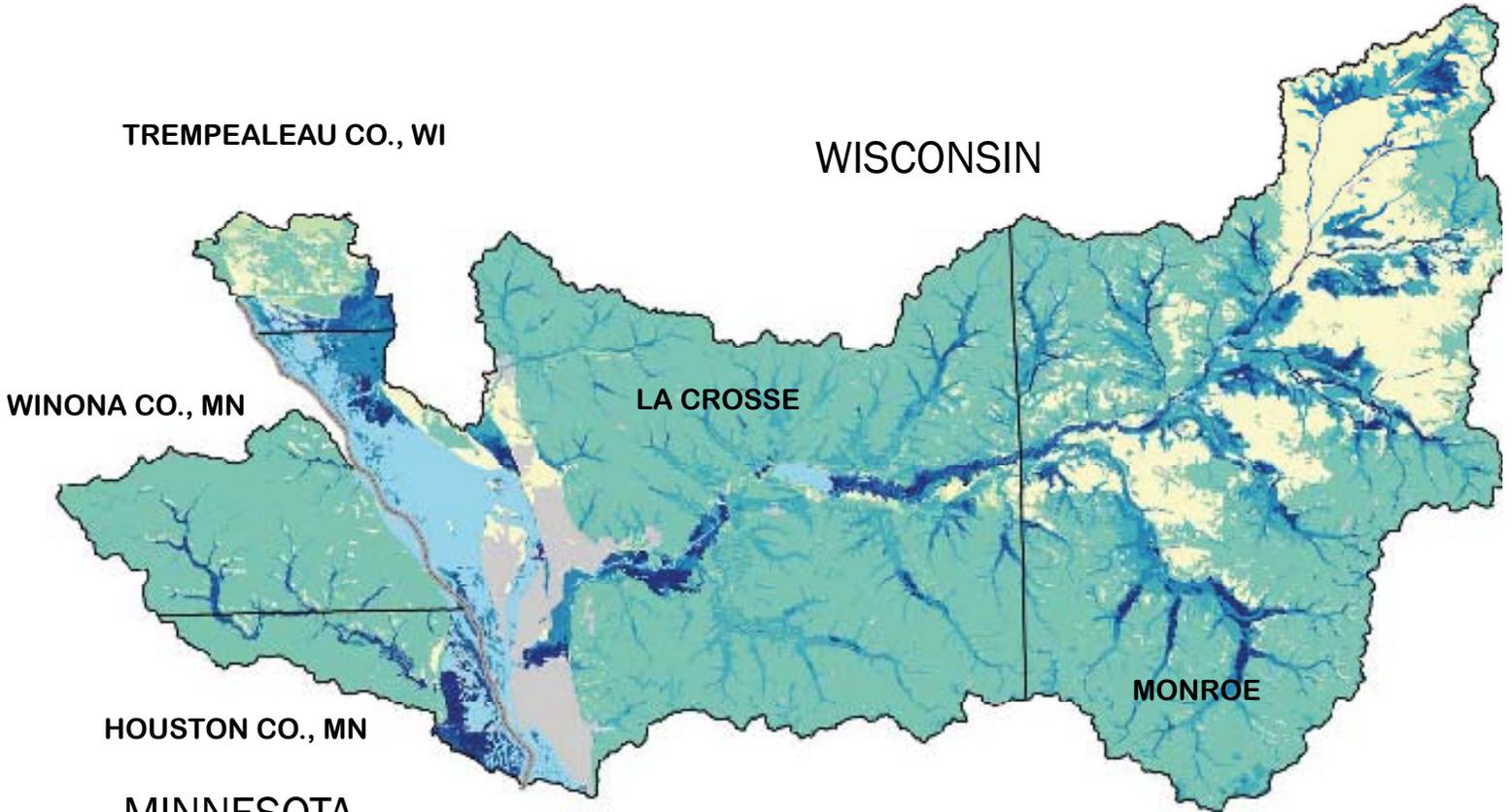
In the eastern part of the watershed the bedrock is dominantly quartz Cambrian sandstones and loess is thin or absent on the hills. Valley terraces and floodplains lack a loess deposit and formed in quartz sands weathered from the local sandstones. Common surface texture is sand. These soils are generally excessively drained to moderately well drained, but range to very poorly drained. Soils generally have rapid permeability and very low and low available water capacity.

In the central and western parts of the watershed the bedrock is dominantly Prairie du Chien dolostone with the Trempealeau and Tunnel City Cambrian sandstones exposed at the lower elevations. Moderately deep to very deep loess overlies the bedrock-controlled landscapes. Valley terraces and floodplains formed dominantly in silty alluvium. Common surface texture is silt loam. These soils are generally well drained in the uplands but range from well to very poorly drained in the valleys. Soils generally have moderate to slow permeability and moderate to very high available water capacity. Erosion, flooding and sedimentation are major concerns.

This watershed is split by the Mississippi River which forms the border between Wisconsin on the east and Minnesota on the west. The Mississippi flows through a wide valley containing multiple levels and ages of terraces and floodplains made up of sandy, loamy and silty alluvial soils depending upon contributing sources. The terraces are often underlain by valuable gravel and cobble deposits. Wind forces across this wide valley from the south and west, deposited eolian sands that formed dunes in many places on the eastern side.

DRAINAGE CLASSIFICATION

Drainage class (natural) refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the “Soil Survey Manual.”



Drainage Classification Map



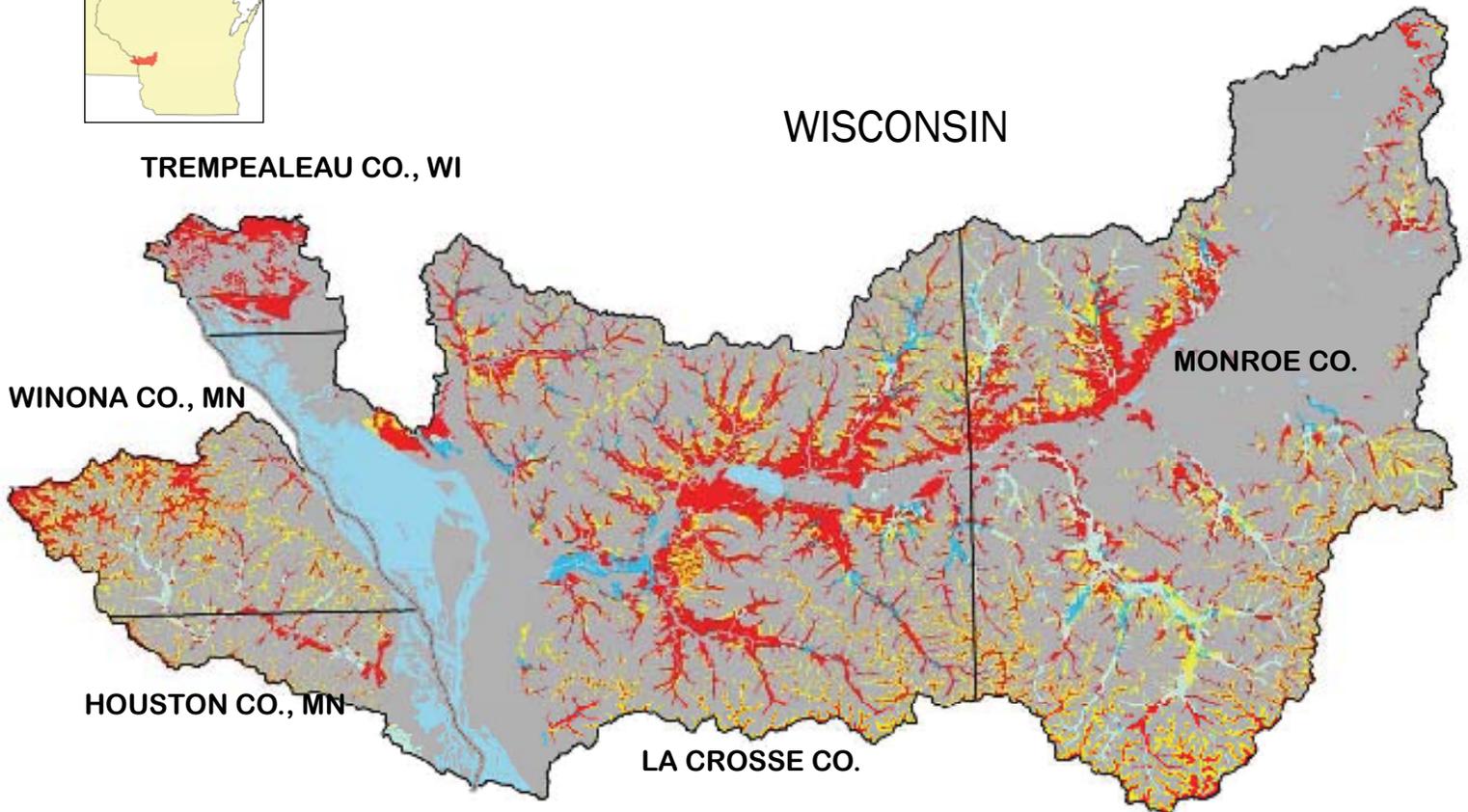
| Drainage Classification | % Area |
|------------------------------|--------|
| Excessively drained | 14.1 |
| Somewhat excessively drained | 1.2 |
| Well drained | 53.7 |
| Moderately well drained | 12.2 |
| Somewhat poorly drained | 5.7 |
| Poorly drained | 3.1 |
| Very poorly drained | 2.4 |
| Unclassified | 7.7 |

Visit the online Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov> for official and current USDA soil information as viewable maps and tables.

 Visit the Soil Data Mart at <http://soildatamart.usda.gov> to download SSURGO certified soil tabular and spatial data.

FARMLAND CLASSIFICATION

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. Farmland classification identifies the location and extent of the most suitable land for producing food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the Federal Register, Vol. 43, No 21, January 31, 1978.



MINNESOTA

Farmland Classification Map

| | Acres | Percent |
|--|---------|---------|
|  All areas are prime farmland | 58,089 | 13.2 |
|  Farmland of statewide importance | 35,613 | 8.1 |
|  Prime farmland if drained | 10,911 | 2.5 |
|  Not Prime farmland | 328,912 | 74.9 |
|  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season | 5,598 | 1.3 |

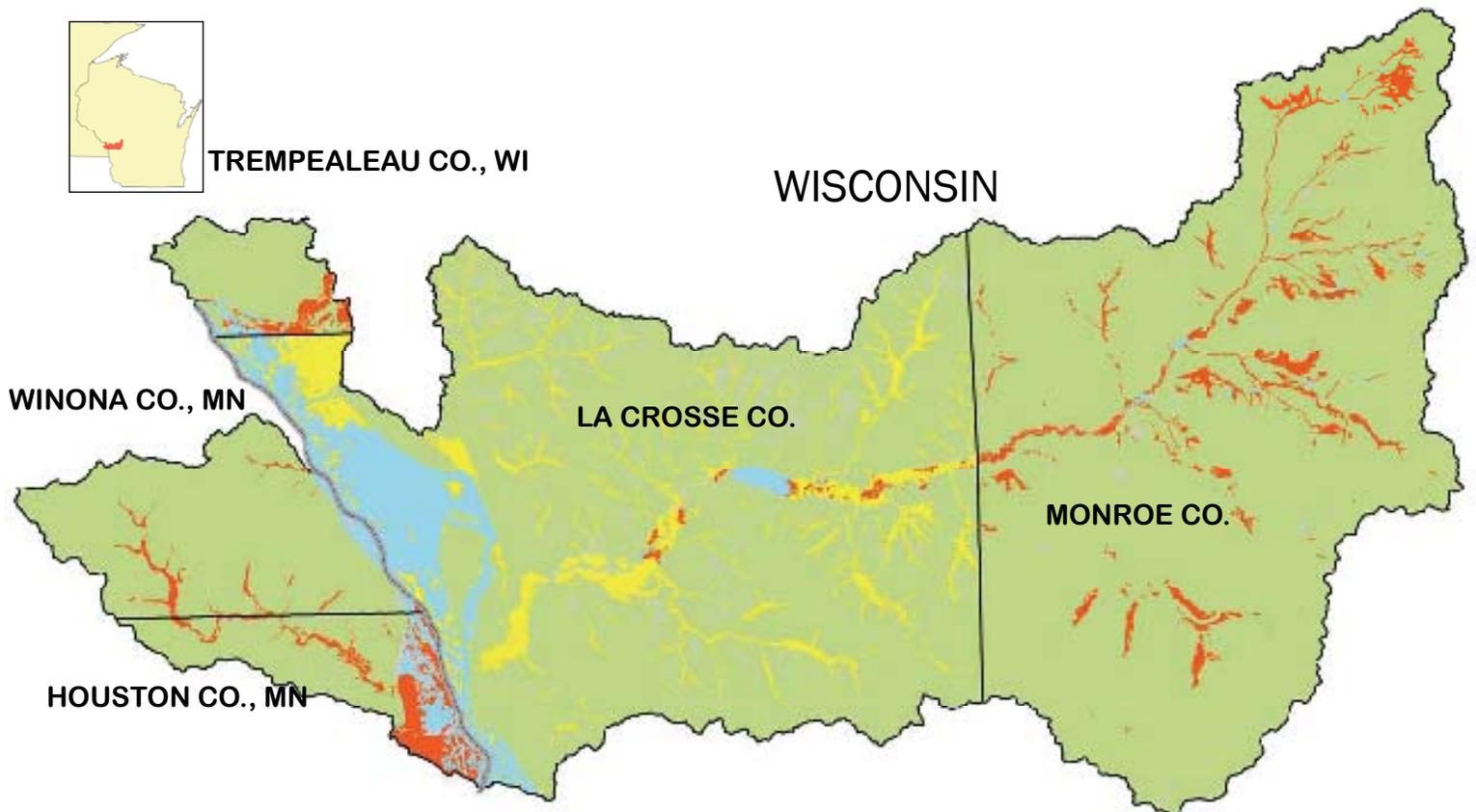
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HYDRIC SOILS

This rating provides an indication of the proportion of the map unit that meets criteria for hydric soils. Map units that are dominantly made up of hydric soils may have small areas, or inclusions of non-hydric soils in the higher positions on the landform, and map units dominantly made up of non-hydric soils may have inclusions of hydric soils in the lower positions on the landform.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make on site determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 2002).



MINNESOTA

Hydric Soils Map

| Hydric Classification | % Area |
|-----------------------|--------|
| Not hydric | 88.6 |
| Partially hydric | 5.3 |
| All hydric | 4.1 |
| UNKNOWN | 2.0 |

The initial Soil Survey of Wisconsin was completed in May of 2006. Soil Survey work in Wisconsin began in the early 1900s shortly after the inception of the National Cooperative Soil Survey. Early soil surveys produced were a joint effort between federal and state agencies. During the 1960s, 1970s, and 1980s, soil surveys depended on county cost-share monies and completed work projects varied around the state. Because of this partnership approach and because soil survey methods and concepts have improved over time, incompatibilities exist between counties.

The next phase of the Wisconsin Soil Survey will work to resolve inconsistencies brought on by the county based soil survey approach by implementing the Major Land Resource Area soil survey approach. By typifying soil series and mapunit concepts across similar geographic areas instead of by political boundaries, the inconsistencies between counties that exist now will be resolved. Updated soil survey information will be continually made available and can be obtained through the Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov> for official and current USDA soil information as viewable maps and tables. Visit the Soil Data Mart at <http://soildatamart.usda.gov> to download SSURGO certified soil tabular and spatial data.

LAND CAPABILITY CLASSIFICATION

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.



Land Capability Classification Map



| Land Capability Classification | % Area |
|--------------------------------|--------|
| Well Suited | 4.9 |
| Moderately well suited | 32.7 |
| Poorly suited | 57.1 |
| Unsuited includes | 5.2 |
| Water | |

RESOURCE CONCERNS

Due to the extent of steep, highly erodible land in the watershed, the largest nonpoint resource concern in the watershed is soil erosion; sheet, rill, and gully. Soil erosion and runoff contributes to excess sediment and nutrients in surface water as well as streambank erosion. Contour strip cropping, no-till planting, grassed waterways, and managed grazing, particularly livestock exclusion from woodlands, are some of the most effective conservation practices in addressing these concerns. Acute oxygen depletion in surface water caused by manure runoff events from fields, barnyards and other livestock feeding areas is also a concern, particularly for trout streams, and can lead to fish kills.

In urbanizing areas, construction site erosion and runoff are the primary concerns. Mass soil movement is also a concern when steep slopes are disturbed during road and building construction.

Flash flooding, due in large part to the steep gradient of the watershed, is a resource and safety concern. Heavy rains in August, 2007 led to significant flooding and damage in the watershed. One person died and others were rescued when their vehicle was swept off the road by Pine Creek, upstream of La Crescent.

PRS AND OTHER DATA⁸.

The following table is a product of the NRCS Performance Results System (PRS) and reflects progress made over the past several years on several key areas of conservation. The PRS provides support for reporting the development and delivery of conservation programs, analyzing and reporting progress, and management applications by NRCS and conservation partners. The public can generate additional reports by visiting the following link: <http://ias.sc.egov.usda.gov/prsreport2006/>



PRS PERFORMANCE MEASURES

| PRS PERFORMANCE MEASURES | FY00 | FY01 | FY02 | FY03 | FY04 | FY05 | FY06 | TOTAL |
|---|-------|------|-------|--------|-------|--------|-------|--------|
| TOTAL CONSERVATION SYSTEMS PLANNED (ACRES) | 546 | 620 | 4,123 | 17,624 | N/A | 23,671 | 3,783 | 50,367 |
| TOTAL CONSERVATION SYSTEMS APPLIED (ACRES) | 686 | 768 | 4,128 | 2,906 | N/A | 3,869 | 4,723 | 17,080 |
| CONSERVATION PRACTICES | | | | | | | | |
| TOTAL WASTE MANAGEMENT (313) (NUMBERS) | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 3 |
| RIPARIAN FOREST BUFFERS (391) (ACRES) | 1,496 | 0 | 2,000 | 2,080 | 85 | 0 | 0 | 5,661 |
| EROSION CONTROL TOTAL SOIL SAVED (TONS/YEAR) | 1,865 | 538 | 1,543 | 1,793 | N/A | N/A | N/A | 5,739 |
| TOTAL NUTRIENT MANAGEMENT (590) (ACRES) | 0 | 0 | 337 | 0 | 919 | 637 | 1,244 | 3,137 |
| PEST MANAGEMENT SYSTEMS APPLIED (595/595A) (ACRES) | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 32 |
| PRESCRIBED GRAZING 528/528A (ACRES) | 0 | 0 | 227 | 0 | 162 | 340 | 44 | 773 |
| TREE & SHRUB ESTABLISHMENT (612) (ACRES) | 72 | 0 | 2 | 0 | 0 | 7 | 0 | 81 |
| RESIDUE MANAGEMENT (329, 329A-C, 344, 345, 346) (ACRES) | 0 | 0 | 337 | 0 | 0 | 0 | 253 | 590 |
| TOTAL WILDLIFE HABITAT (644 - 645) (ACRES) | 216 | 216 | 1,750 | 2,439 | 1,548 | 2,047 | 1,704 | 9,920 |
| TOTAL WETLANDS CREATED, RESTORED, OR ENHANCED (ACRES) | 0 | 6 | 16 | 32 | 0 | 93 | 23 | 170 |
| ACRES ENROLLED IN FARMBILL PROGRAMS | | | | | | | | |
| CONSERVATION RESERVE PROGRAM | 0 | 0 | 0 | 0 | N/A | 0 | 0 | 0 |
| WETLANDS RESERVE PROGRAM | 0 | 30 | 0 | 0 | N/A | 52 | 52 | 134 |
| ENVIRONMENTAL QUALITY INCENTIVES PROGRAM | 0 | 160 | 0 | 32 | N/A | 982 | 1,634 | 2,808 |
| WILDLIFE HABITAT INCENTIVE PROGRAM | 0 | 0 | 0 | 0 | N/A | 0 | 0 | 0 |
| FARMLAND PROTECTION PROGRAM | 0 | 0 | 0 | 0 | N/A | 0 | 0 | 0 |

CENSUS AND SOCIAL DATA (RELEVANT)⁹.

There are 1,343 farms in the watershed, covering a total of 268,027 acres. Average farm size in the watershed is 200 acres compared to a statewide average of 201 acres in Wisconsin. Please refer to the tables below for more detailed information or visit the web site of the Wisconsin Office of the National Agricultural Statistics Service at: http://www.nass.usda.gov/Statistics_by_State/Wisconsin/index.asp

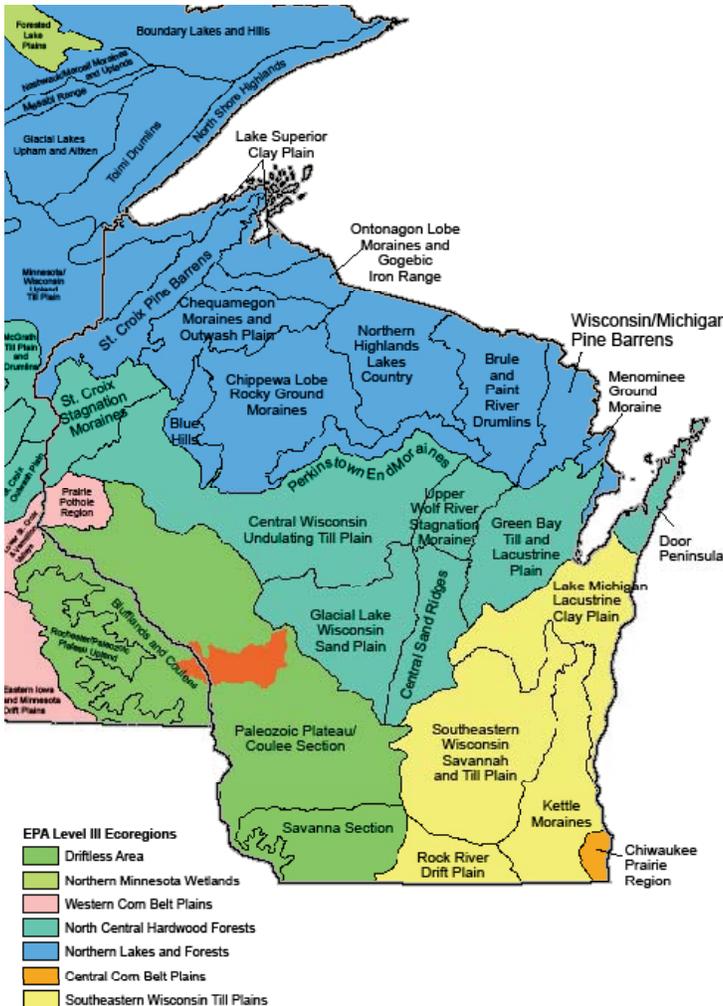
| 2002 Ag Census Data | | La Crosse | Monroe | Trempealeau | Houston | Winona | Total |
|--------------------------|---|-----------|---------|-------------|---------|--------|---------|
| | Farms (number) | 529 | 617 | 44 | 53 | 99 | 1,343 |
| | Land in farms (acres) | 106,191 | 112,036 | 9,360 | 13,064 | 27,376 | 268,027 |
| | Total cropland (acres) | 58,174 | 59,182 | 5,593 | 7,815 | 18,516 | 149,279 |
| | Irrigated land (acres) | 499 | 1,178 | 148 | 12 | 2 | 1,839 |
| | Principal operator by primary occupation - Farming (number) | 277 | 365 | 25 | 33 | 66 | 765 |
| Farms by Size | Farms by size - 1 to 10 acres | 28 | 26 | 2 | 1 | 5 | 62 |
| | Farms by size - 11 to 49 acres | 99 | 113 | 6 | 9 | 15 | 242 |
| | Farms by size - 50 to 179 acres | 209 | 290 | 20 | 18 | 33 | 570 |
| | Farms by size - 180 to 499 acres | 144 | 148 | 13 | 19 | 32 | 356 |
| | Farms by size - 500 to 999 acres | 38 | 30 | 3 | 5 | 10 | 86 |
| | Farms by size - 1,000 acres or more | 10 | 11 | 1 | 1 | 4 | 27 |
| Livestock and Poultry | Livestock and poultry - Cattle and calves inventory (farms) | 258 | 353 | 19 | 27 | 59 | 717 |
| | Livestock and poultry - Cattle and calves inventory - Beef cows (farms) | 113 | 124 | 7 | 17 | 29 | 289 |
| | Livestock and poultry - Cattle and calves inventory - Milk cows (farms) | 92 | 164 | 8 | 7 | 25 | 296 |
| | Livestock and poultry - Hogs and pigs inventory (farms) | 14 | 27 | 1 | 4 | 5 | 51 |
| | Livestock and poultry - Sheep and lambs inventory (farms) | 20 | 26 | 1 | 2 | 2 | 51 |
| | Livestock and poultry - Layers 20 weeks old and older inventory (farms) | 26 | 50 | 2 | 1 | 3 | 82 |
| | Livestock and poultry - Broilers and other meat-type chickens sold (farms) | 9 | 17 | 1 | 1 | 2 | 30 |
| Selected Crops Harvested | Selected crops harvested - Corn for grain (acres) | 18,640 | 13,828 | 1,526 | 2,407 | 6,487 | 42,887 |
| | Selected crops harvested - Corn for silage or greenchop (acres) | 3,139 | 4,814 | 248 | 363 | 1,238 | 9,802 |
| | Selected crops harvested - Wheat for grain, all (acres) | 121 | 152 | 28 | 6 | 36 | 343 |
| | Selected crops harvested - Wheat for grain, all - Winter wheat for grain (acres) | 90 | 0 | 26 | 0 | 0 | 116 |
| | Selected crops harvested - Wheat for grain, all - Spring wheat for grain (acres) | 30 | 0 | 3 | 0 | 0 | 33 |
| | Selected crops harvested - Oats for grain (acres) | 1,283 | 1,739 | 95 | 218 | 618 | 3,953 |
| | Selected crops harvested - Barley for grain (acres) | 107 | 99 | 8 | 10 | 32 | 256 |
| | Selected crops harvested - Soybeans for beans (acres) | 6,453 | 4,793 | 795 | 1,228 | 2,634 | 15,904 |
| | Selected crops harvested - Forage - land used for all hay and all haylage, grass silage, and greenchop (see text) (acres) | 18,356 | 21,685 | 1,512 | 2,037 | 5,052 | 48,643 |
| | Selected crops harvested - Vegetables harvested for sale (see text) (acres) | 92 | 36 | 25 | 2 | 153 | 308 |
| | Selected crops harvested - Land in orchards (acres) | 56 | 35 | 12 | 11 | 43 | 157 |

POPULATION ETHNICITY ^{10.}

Total Population = 118,510
 Urban population = 94,860
 Rural Population = 23,832
 White alone = 111,906
 Hispanic or Latino = 1,183
 Two or more races = 1,356
 Black or African American alone = 1,058
 Some other race alone = 535
 American Indian and Alaska Native alone = 760
 Asian Alone = 2,873
 Native Hawaiian and Other Pacific Islander alone = 27

URBAN POPULATION ^{11.}

| City | 1990 | 2000 | 2005 | Median Income* |
|--------------|--------|--------|--------|----------------|
| Dakota, MN | 360 | 330 | 322 | 50,156 |
| Onalaska | 11,284 | 14,839 | 15,701 | 47,800 |
| Rockland, MN | 509 | 628 | 638 | 46,429 |
| La Crosse | 4,311 | 4,939 | 5,095 | 45,433 |
| West Salem | 3,611 | 4,540 | 4,709 | 43,449 |
| Bangor | 1,076 | 1,400 | 1,375 | 42,102 |
| Holmen | 3,220 | 6,200 | 7,446 | 42,021 |
| Trempealeau | 1,039 | 1,319 | 1,459 | 36,422 |
| Sparta | 7,788 | 8,648 | 8,827 | 33,397 |
| La Crosse | 51,003 | 51,818 | 50,287 | 31,103 |
| Cashton | 780 | 1,005 | 1,018 | 30,938 |
| Melvina | 115 | 93 | 94 | 21,250 |



ECOLOGICAL LANDSCAPES ^{12.}
GENERAL DESCRIPTIONS

DRIFTLESS AREA

The hilly uplands of the Driftless Area ecoregion easily distinguish it from surrounding ecoregions. Much of the area consists of a deeply dissected loess-capped plateau. Also called the Paleozoic Plateau because there is evidence of glacial drift in this region, the glacial deposits have done little to affect the landscape compared to the subduing influences in adjacent ecoregions. Livestock and dairy farming are major land uses and have had a major impact on stream quality. In contrast to the adjacent glaciated ecoregions, the Driftless Area has few lakes, most of which are reservoirs with generally high trophic states, and a stream density and flow that is generally greater than regions to the east.

Paleozoic Plateau Coulee Section

Dissected slopes and open hills with most of the gentle slope on the lowland characterize the Coulee Section ecoregion. Soils are well drained silty loess over residuum, limestone, sandstone or shale, with soils over quartzite in the Baraboo Hills area. Land use in the region is

predominantly mixed agriculture/woodland, with most of the agriculture occurring on the lowlands and more level hilltops. The potential natural vegetation of this Coulee Section ecoregion is a mosaic of oak forests and prairie, with larger areas of sugar maple/basswood/oak forests than in Savanna Section ecoregion.

Blufflands and Coulees

Steeply dissected plateau, wooded on slopes with crops in bottoms, some pasture and crops on bluffs.

WATERSHED ASSESSMENT

To assess a watershed's agricultural nonpoint pollution potential, a model was used to generate a watershed assessment score relative to other 8-digit watersheds in Wisconsin. Factors used in the model include acres of cropland, acres of highly erodible land (HEL), and the number of animal units in the watershed. Scores ranged from 0.0 (lowest conservation need) to 24.2 (highest conservation need). The scores may be useful in determining funding allocations on a watershed basis for agricultural nonpoint pollution control initiatives. The model does not attempt to measure pollution levels and does not reflect pollution potential from point sources of pollution or other nonpoint pollution sources beyond the above criteria.

The watershed assessment score for the La Crosse Pine Watershed is 5.2.

WATERSHED PROJECTS, STUDIES, MONITORING, ETC.

Dozens of miles of stream habitat improvement work has been performed over many years in the watershed. Partners include county land conservation departments, Fort McCoy Military Reservation, the Wisconsin Department of Natural Resources (WDNR), Trout Unlimited, USDA-NRCS, and others. Projects are typically done on trout streams and involve streambank shaping, stabilization, and the installation of lunger structures to provide habitat and cover for fish.

Nearly the entire watershed, in both states, is a project area for the Conservation Reserve Enhancement Program (CREP). CREP is local, state, and federal partnership effort that builds upon the USDA Conservation Reserve Program (CRP). Practices such as filter strips, riparian buffers, and grassed waterways are available to landowners to agree to a fifteen year agreement that involve installation, practice, and annual payments with the option of perpetual easement.

There have not been any WDNR Priority Watershed projects in this watershed. The WDNR conducts water quality monitoring in many streams and lakes within the watershed each year. The Minnesota Pollution Control Agency is responsible for water quality monitoring in the Minnesota portion of the watershed. The WDNR Surface Water Data Viewer (SMDV) is an online interactive mapping tool with multiple water-related datasets.
<http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=SurfaceWaterViewer>

PARTNER GROUPS

- Fort McCoy Military Reservation <http://www.mccoy.army.mil/Index.asp>
- Minnesota Board of Water and Soil Resources <http://www.bwsr.state.mn.us>
- Minnesota Department of Agriculture <http://www.mda.state.mn.us>
- Minnesota Pollution Control Agency <http://www.pca.state.mn.us>
- Minnesota Department of Natural Resources <http://www.dnr.state.mn.us>
- Minnesota Waters <http://www.minnesotawaters.org>
- River Alliance of Wisconsin <http://www.wisconsinrivers.org/>
- Trout Unlimited
- Coulee Region Chapter (WI)- www.CouleeRegionTU.org
- Minnesota - <http://www.mntu.org/index.php>
- USDA Farm Service Agency (WI) <http://www.fsa.usda.gov/wi/news/default.asp>,
(MN) <http://www.fsa.usda.gov/mn/news/default.asp>
- US Fish and Wildlife Service <http://www.fws.gov/midwest>
- USDA-Natural Resources Conservation Service (WI) <http://www.wi.nrcs.usda.gov> ,
(MN) <http://www.mn.nrcs.usda.gov/>
- University of Minnesota Extension <http://www.extension.umn.edu>
- University of Wisconsin Cooperative Extension <http://www.uwex.edu/ces/> and
<http://basineducation.uwex.edu>
- Wisconsin Department of Agriculture, Trade, and Consumer Protection <http://www.datcp.state.wi.us>
- Wisconsin Department of Natural Resources <http://dnr.wi.gov/>
- Wisconsin Land and Water Conservation Association (County Land Conservation Committee organization)
www.wlwca.org
- Land and Water Conservation Directory
<http://datcp.state.wi.us/arm/agriculture/land-water/conservation/pdf/ar-pub-119-2007.pdf>

FOOTNOTES/BIBLIOGRAPHY

All data is provided “as is.” There are no warranties, express or implied, including the warranty of fitness for a particular purpose, accompanying this document. Use for general planning purposes only.

1. Introduction and the description of resource concerns of the LaCrosse Pine Watershed were derived from a report issued by the Wisconsin Department of Natural Resources titled “The State of the Bad-Axe LaCrosse River Basin Report” March 2002, WDNR <http://www.dnr.state.wi.us/org/gmu/>
2. Common Resource Area (CRA) Map delineations are defined as geographical areas where resource concerns, problems, or treatment needs are similar. It is considered a subdivision of an existing Major Land Resource Area (MLRA) map delineation or polygon. Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographic boundaries of a Common Resource Area. Online linkage: <http://soils.usda.gov/survey/geography/cra.html>.
3. The relief map was created using the National Elevation Dataset (NED) 1 arc second, approximately 30 meters, digital elevation model (DEM) raster product assembled by the U.S. Geological Survey (USGS). A hillshade grid was derived from the 30m DEM and draped over the DEM to symbolize the map and create a 3-D effect. The data was downloaded from the NRCS Geospatial Data Gateway <http://datagateway.nrcs.usda.gov/>. For more information about NED visit <http://ned.usgs.gov/>.
4. Average Annual Precipitation data was originated by Chris Daly of Oregon State University and George Taylor of the Oregon Climate Service at Oregon State University and published by the Water and Climate Center of the Natural Resources Conservation Service in 1998. Annual precipitation data was derived from the climatological period of 1961-1990. Parameter-elevation Regressions on Independent Slopes Model (PRISM) derived raster data is the underlying data set from which the polygons and vectors were created. For more information about PRISM visit http://www.ocs.orst.edu/prism/prism_new.html. Precipitation data was downloaded from the NRCS Geospatial Data Gateway <http://datagateway.nrcs.usda.gov/>.
- 5 The Land Use/Land Cover data was generated from the National Land Cover Dataset (NLCD) compiled from Landsat satellite TM imagery (circa 1992) with a spatial resolution of 30 meters and supplemented by various ancillary data (where available). The data was assembled by the USGS and published in June of 1999. The analysis and interpretation of the satellite imagery was conducted using very large, sometimes multi-state image mosaics. For more information about NLCD visit <http://edcwww.cr.usgs.gov/programs/lccp/nationallandcover.html>. The data was downloaded from the NRCS Geospatial Data Gateway <http://datagateway.nrcs.usda.gov/>.
6. 303(d) listed streams were derived from the Water Quality Standards Section of the Wisconsin Department of Natural Resources (WDNR) website: [http://dnr.wi.gov/org/water/wm/wqs/303d/Lists303d/Approved_2004_303\(d\)_list.pdf](http://dnr.wi.gov/org/water/wm/wqs/303d/Lists303d/Approved_2004_303(d)_list.pdf). For more information about the individual sub-watersheds visit <http://dnr.wi.gov/org/gmu/gpsp/gpbasin/index.htm>. For a list and explanation of Outstanding and Exceptional Resource Waters visit: <http://dnr.wi.gov/org/water/wm/wqs/orwerw/>.
7. Soil Survey Geographic Database (SSURGO) tabular and spatial data were downloaded for the following surveys:
 - La Crosse Co., WI (WI063) Published 20061031
 - Monroe Co., WI (WI081) Published 20061206
 - Trempealeau, Co. WI (WI121) Published 20061205
 - Houston Co. MN (MN055) Published 20070113
 - Winona Co., MN (MN169) Published 20070122

Metadata and SSURGO data for the aforementioned surveys were downloaded from the NRCS Soil Data Mart at <http://soildatamart.nrcs.usda.gov>. Component and layer tables from the tabular data were linked to the spatial data to derive the soil classifications found in this section. Visit the online Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov> for official and current USDA soil information as viewable maps and tables.

8. Performance Results System (PRS) data was extracted from the PRS homepage by year, conservation systems and practices and Hydrologic Unit Code (HUC) level. HUC level reporting was not available where N/A is listed. For more information on these and other performance reports visit <http://ias.sc.egov.usda.gov/prshome/>.

9. Ag Census data were downloaded from the National Agricultural Statistics Service (NASS) Website and the data were adjusted by percent of HUC in the county. For more information on individual census queries visit the NASS website at <http://www.nass.usda.gov/>.

10. Population ethnicity data were extracted from the Census 2000 Summary File 3 compiled by the U.S. Census Bureau. The data were adjusted by Block Group percentage in the HUC. Population items were selected from the SF30001 table. For more information on census data and definitions visit <http://www.census.gov/Press-Release/www/2002/sumfile3.html>.

11. Urban population and median household income data were derived from the American FactFinder assembled by the U.S. Census Bureau. American FactFinder is a quick source for population, housing, income and geographic data. For other census items and trends visit http://factfinder.census.gov/home/saff/main.html?_lan

12. Level III and IV Ecoregions Regions of Wisconsin map and descriptions were derived from electronic coverages available from Wisconsin DNR, Bureau of Integrated Science Services Branch in cooperation with the U.S Environmental Protection Agency. For more information visit ftp://ftp.epa.gov/wed/ecoregions/wi/wi_eco_pg.pdf